

# Satellite Surveillance of the Gulf and Beyond: An Overview of the LSU Earth Scan Laboratory's Ocean Observing Capabilities

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The authors dedicate this publication to Prof. Oscar K. Huh who's role in satellite remote sensing has had an enormous impact on both the LSU Earth Scan Laboratory he founded, and the many fields of science he has pursued. His tireless pursuit of new and innovative ways to view the world has inspired us all.

## Some ESL History

- Founded in 1988 by Oscar K. Huh
- Single workstation
- Seaspac Terascan software
- 1 meter polar tracking antenna
- NOAA POES series satellites



## Some ESL History

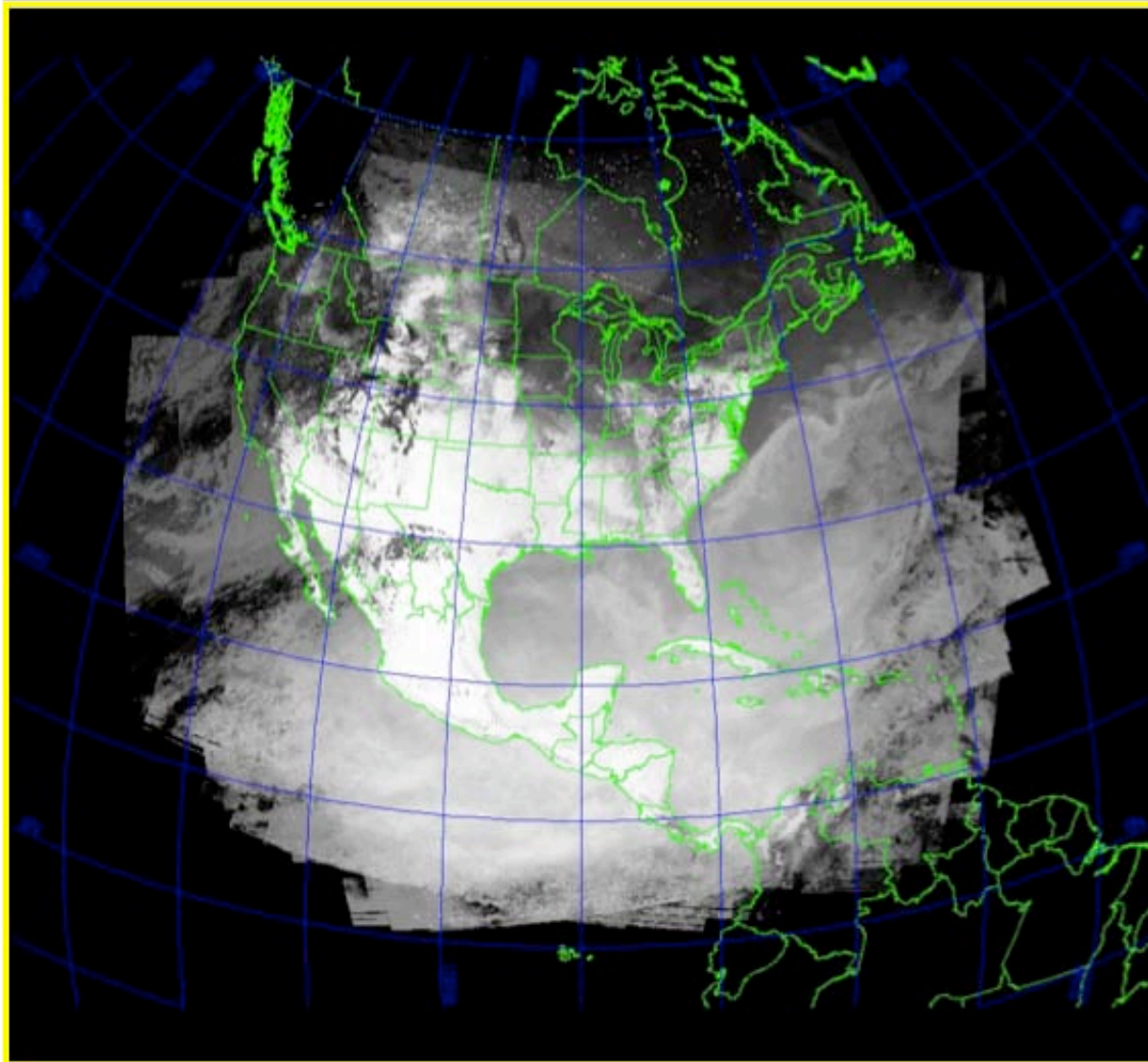
- 1992
  - Hurricane Andrew
  - 1<sup>st</sup> emergency response experience
- 1995
  - Acquire GOES geostationary capture capability
- 2000
  - Acquire X-band antenna for MODIS capture



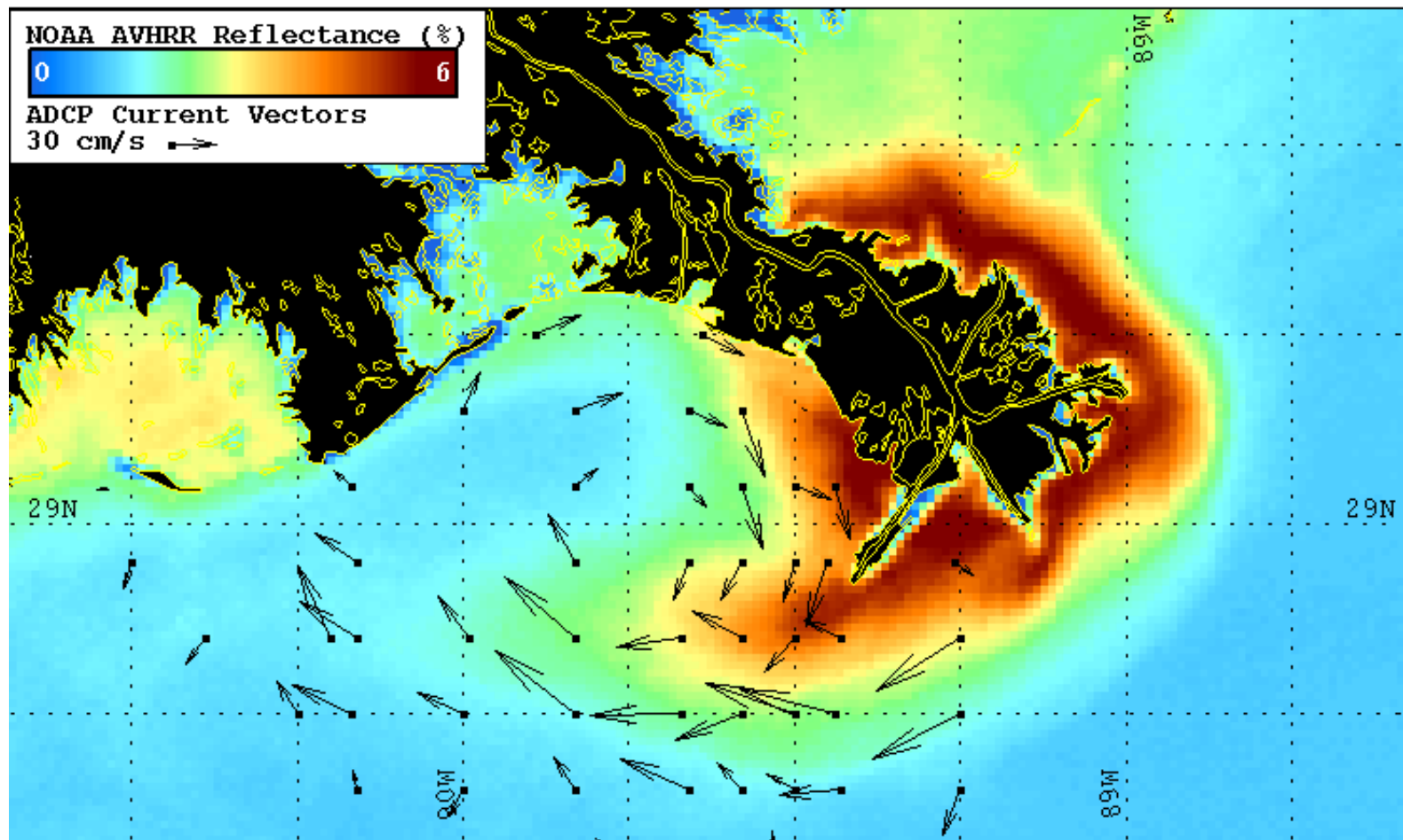
## Funded Collaborations

- LEQSF
  - Louisiana Educational Quality Support Fund
- GOHSEP
  - originally LOEP
- NOAA
- NASA
- LTIF
  - Louisiana Technology Innovation Fund
- Horizon Marine
  - Eddy Watch
- ONR
- MMS

# Capabilities & Applications

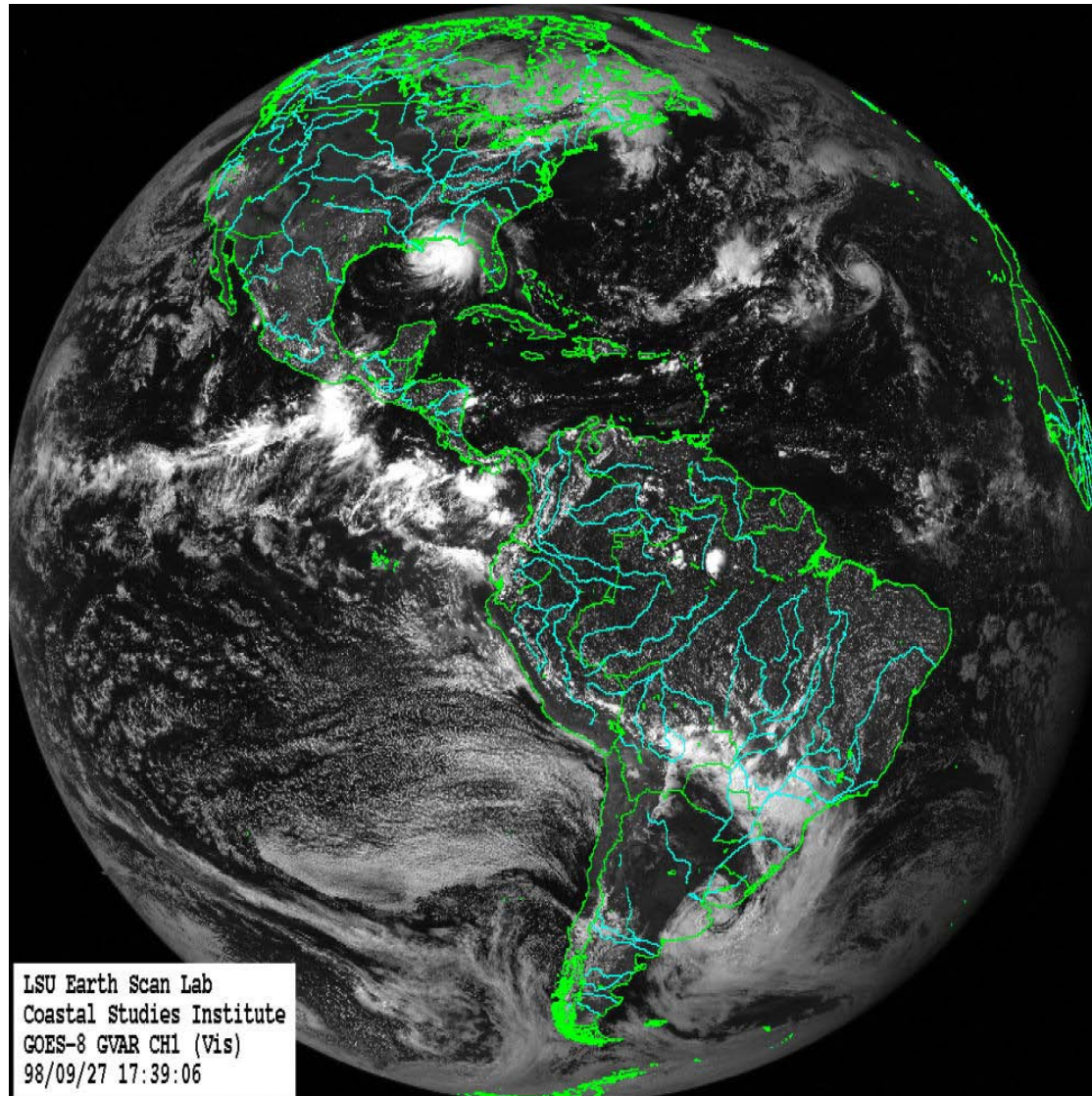


# Capabilities & Applications



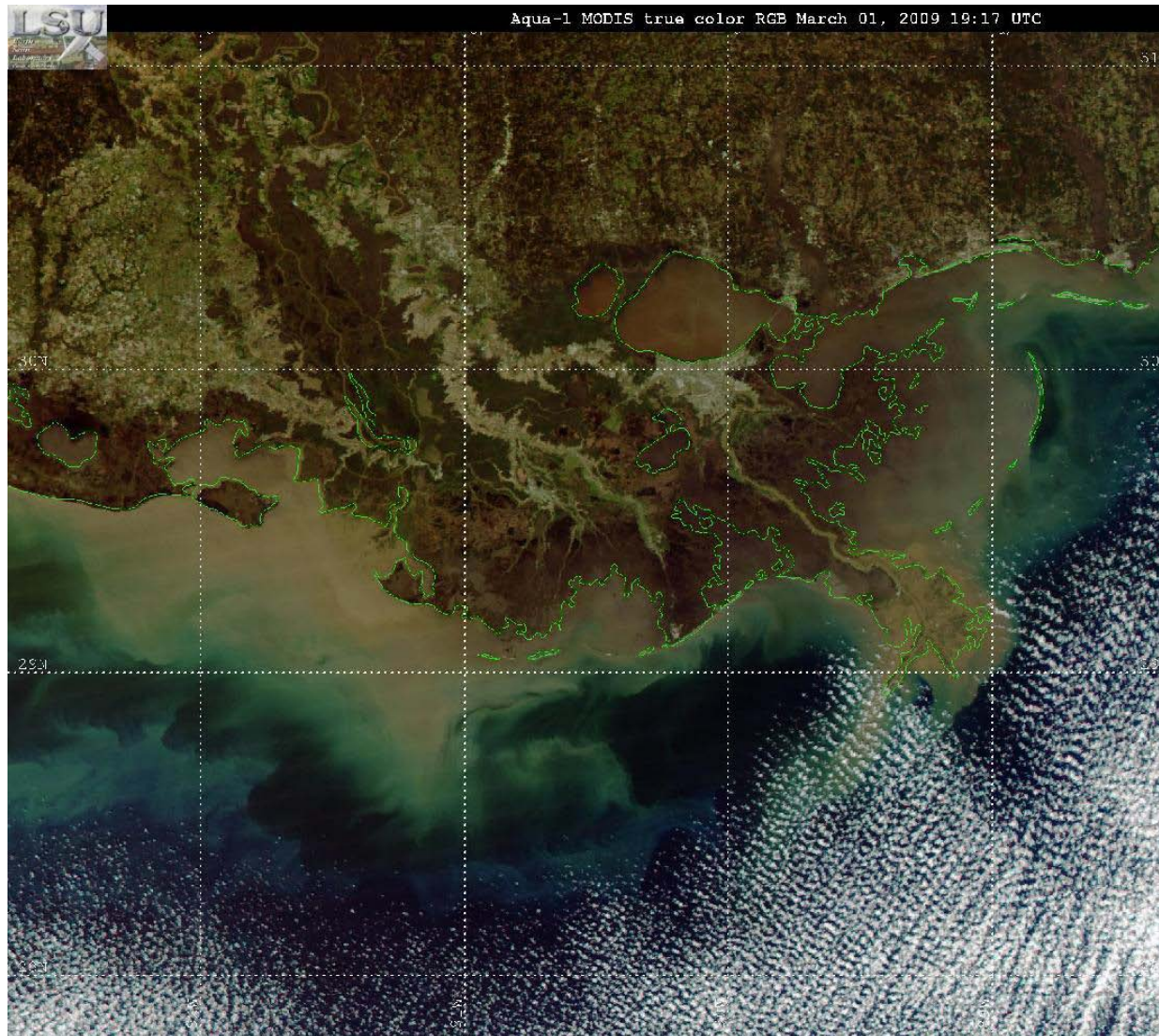


# Capabilities & Applications

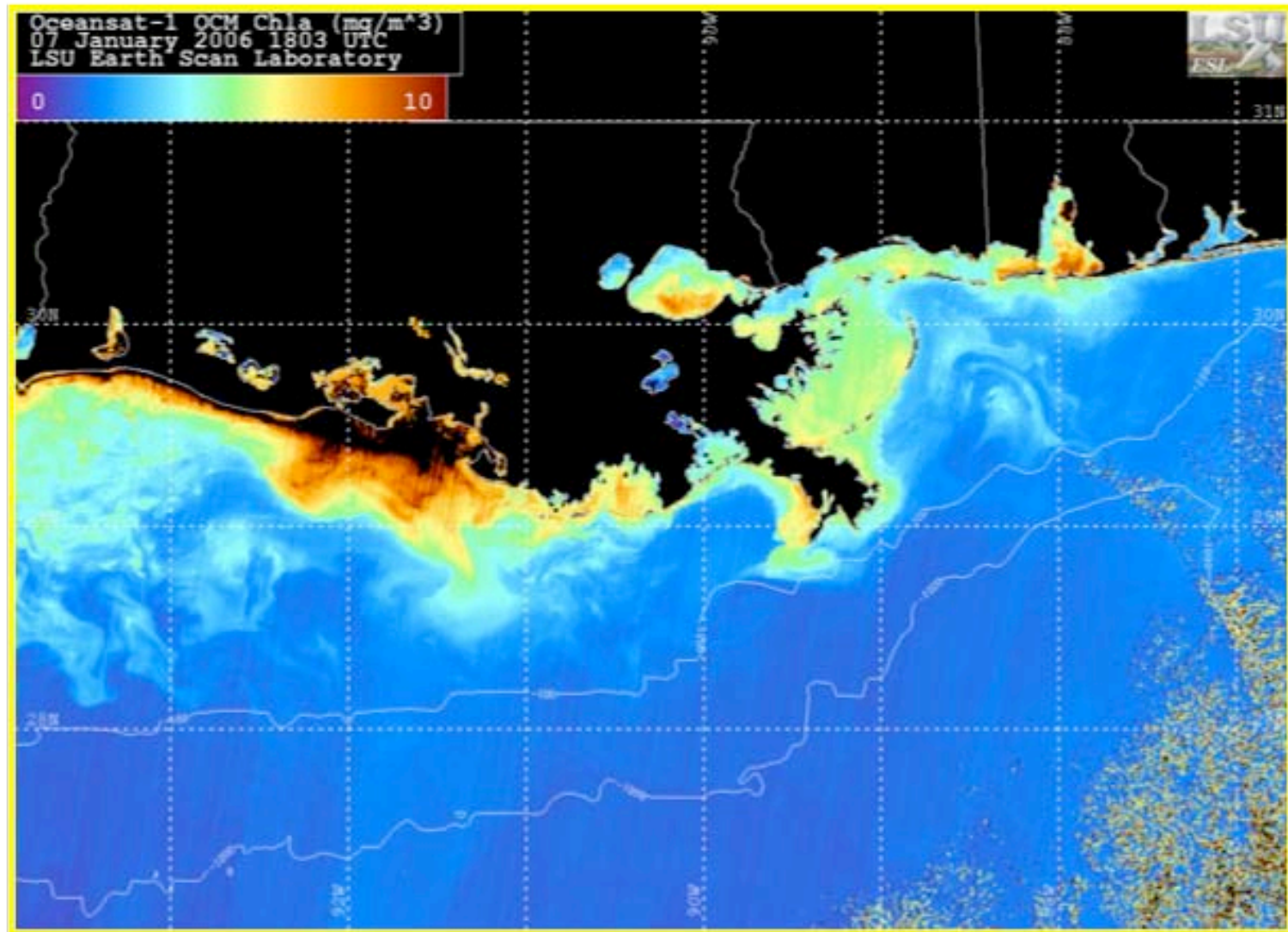




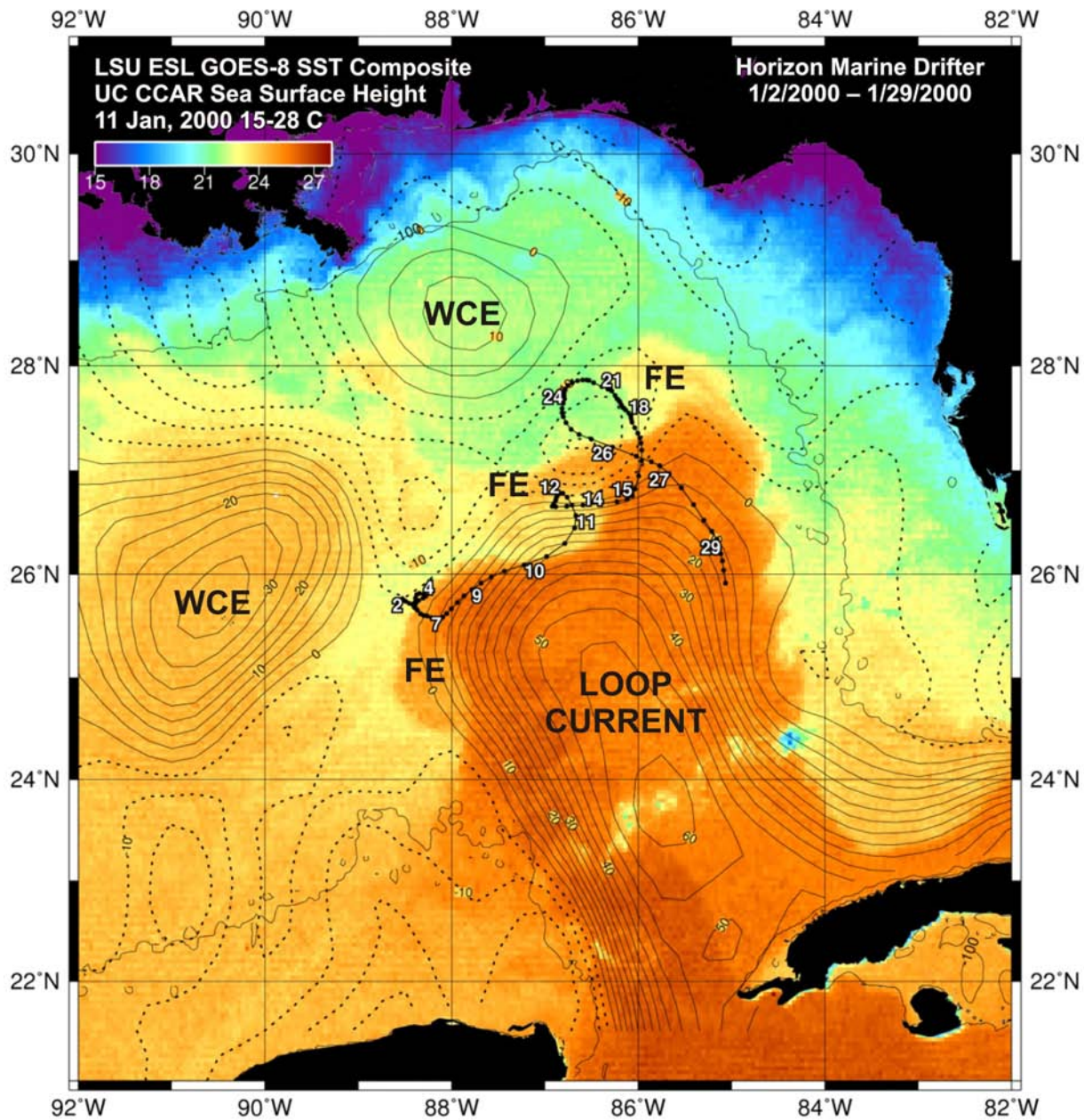
# Capabilities & Applications



# Capabilities & Applications









## Image Archives

- Hurricane animations
- “Best of” archive
- Highlight several areas of focused study
- Composite imagery
- Daily imagery

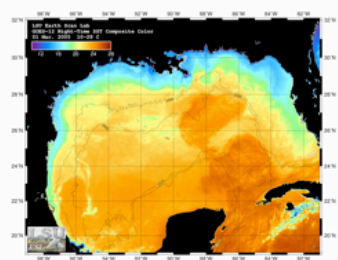




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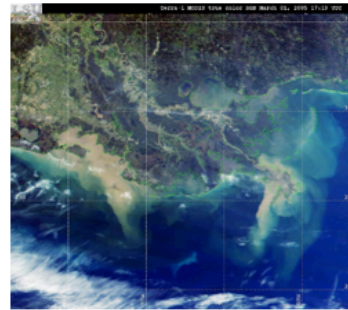
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### GOES Image Archives



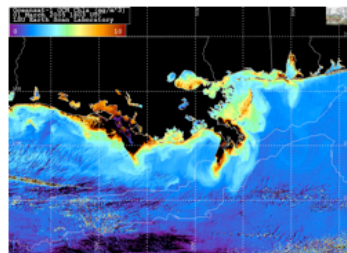
- [Night Time Daily Composite SST](#)
- [Night Time Weekly Composite SST](#)

### MODIS Image Archives



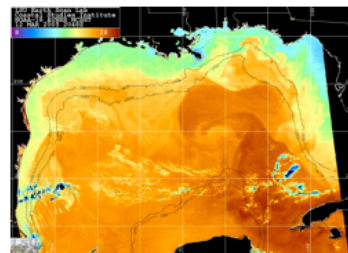
- [Low Resolution Archive](#)
- [High Resolution Archive](#)

### OCM Image Archives



- ["Truecolor" Image Archive](#)
- [Chlorophyll Image Archive](#)

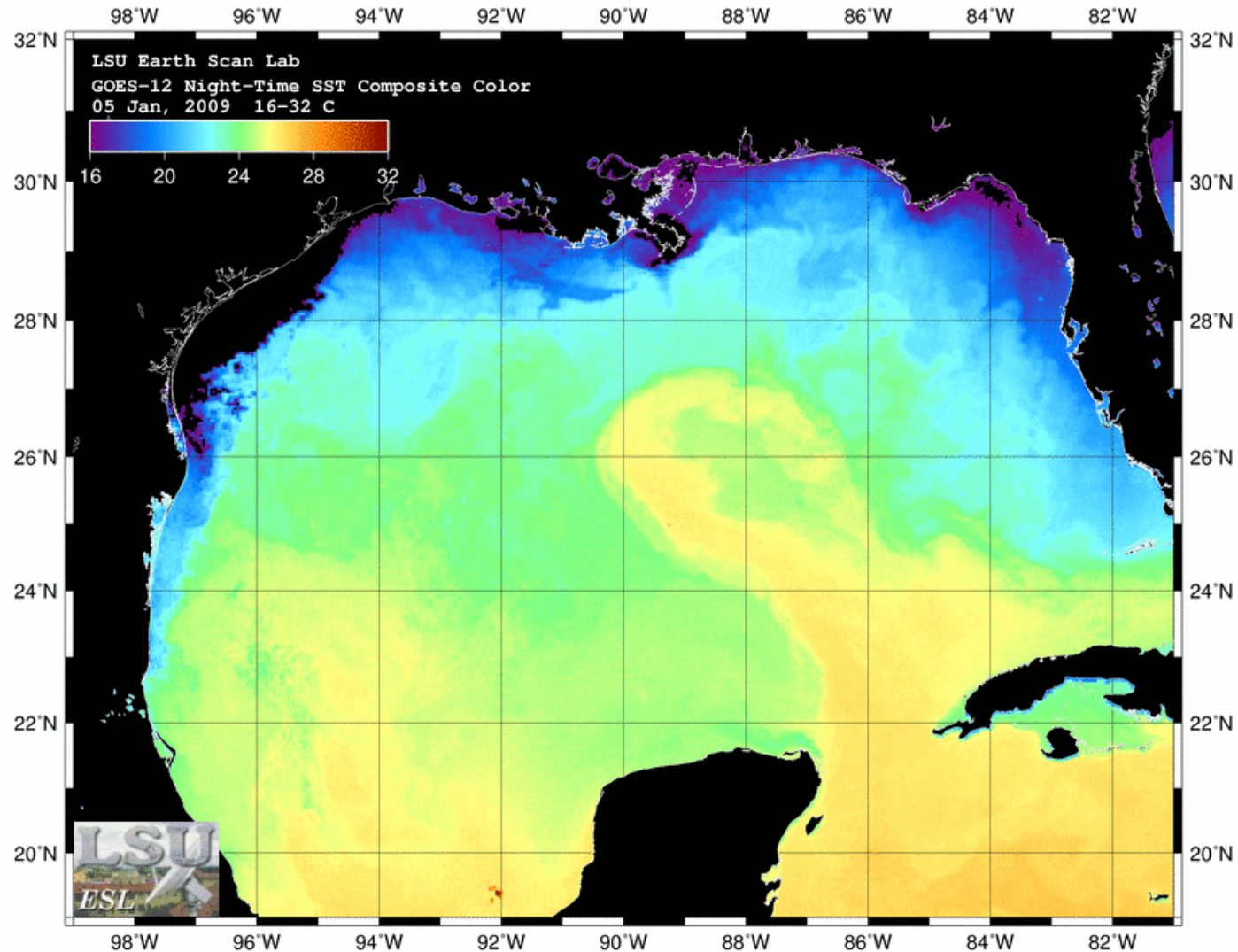
### POES Image Archives



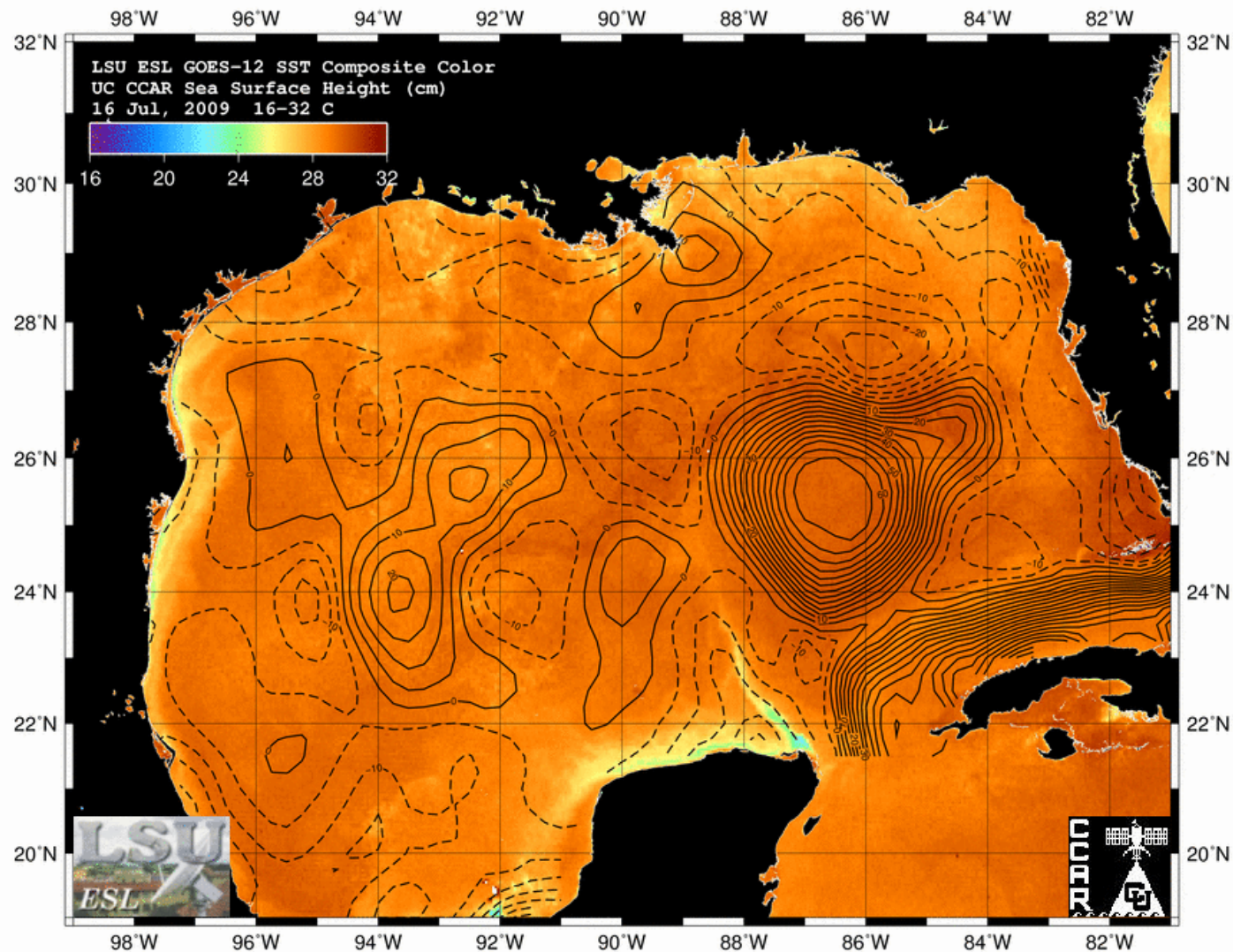
- [Bi-daily Infrared Swaths](#)
- [Gulf of Mexico SST](#)
- [Atchafalya Bay SST & Reflectance](#)
- [Mississippi Delta SST & Reflectance](#)



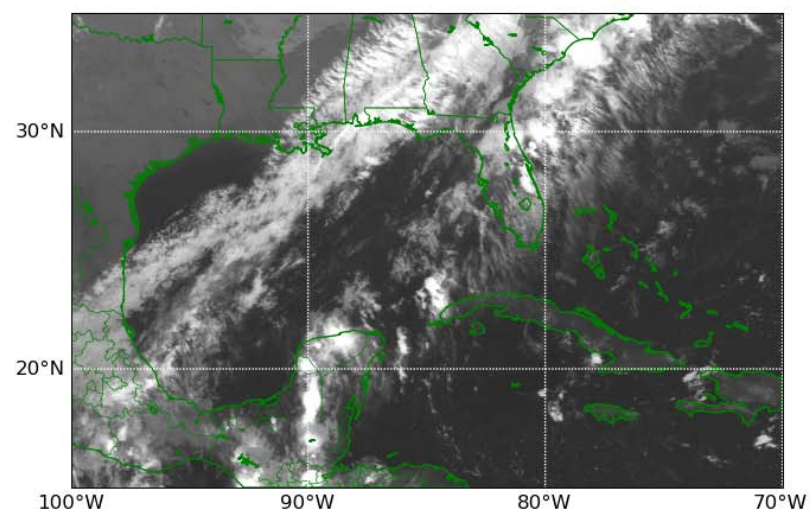
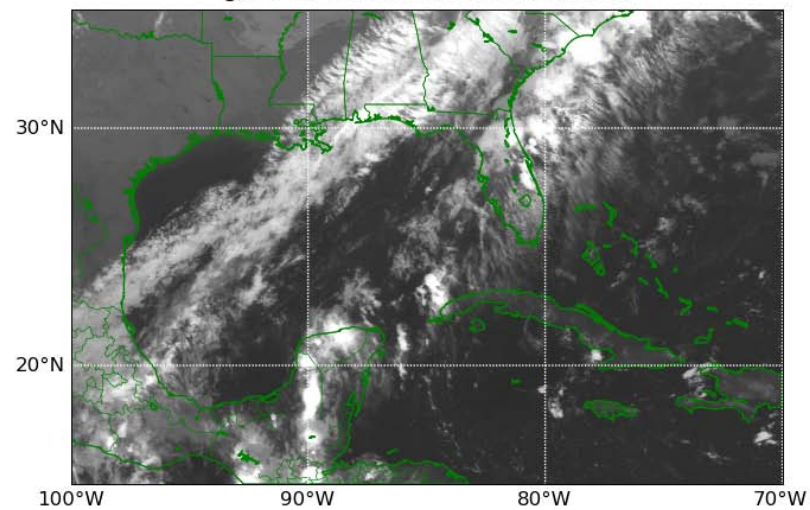
# An SST in January



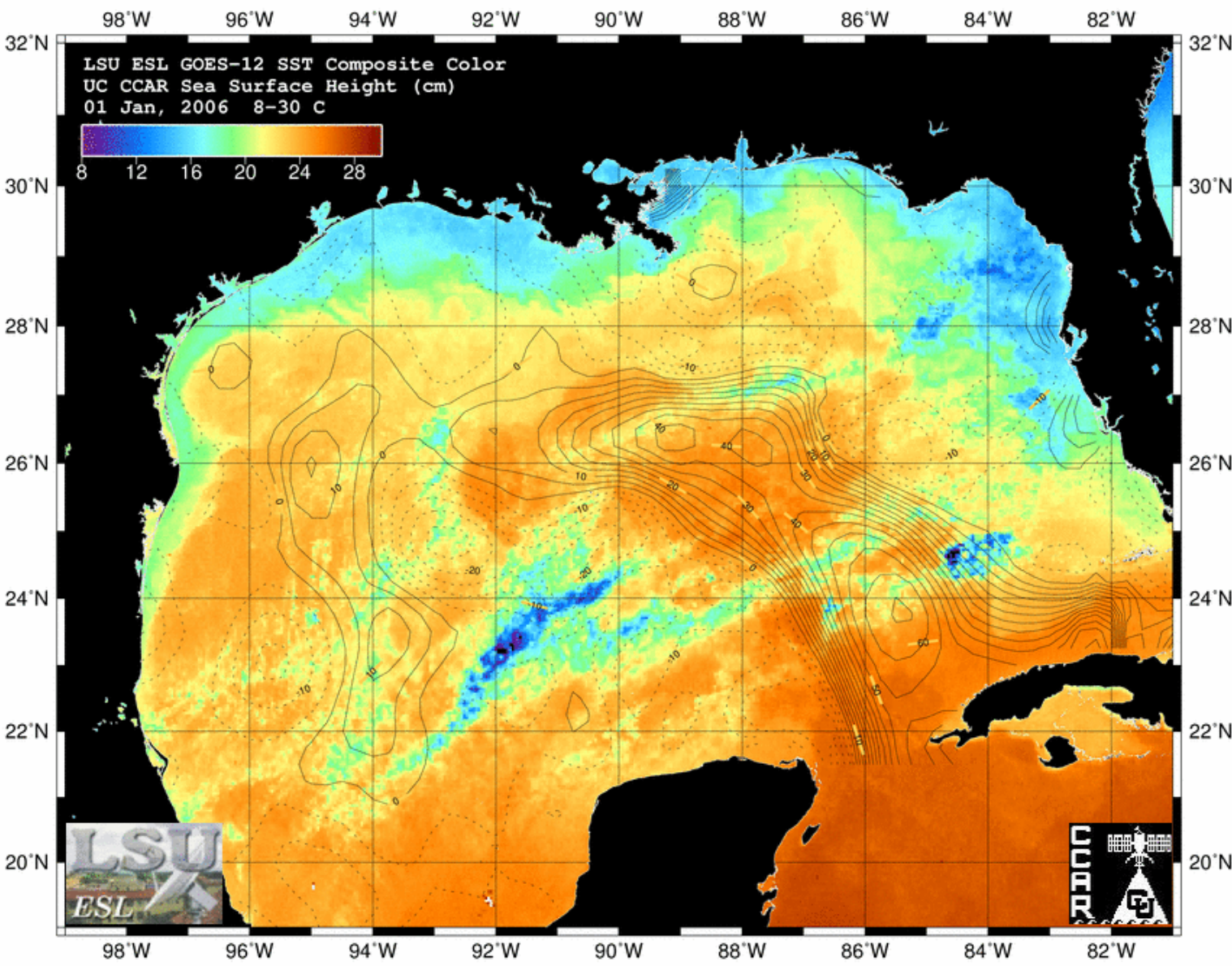
# An SST in July

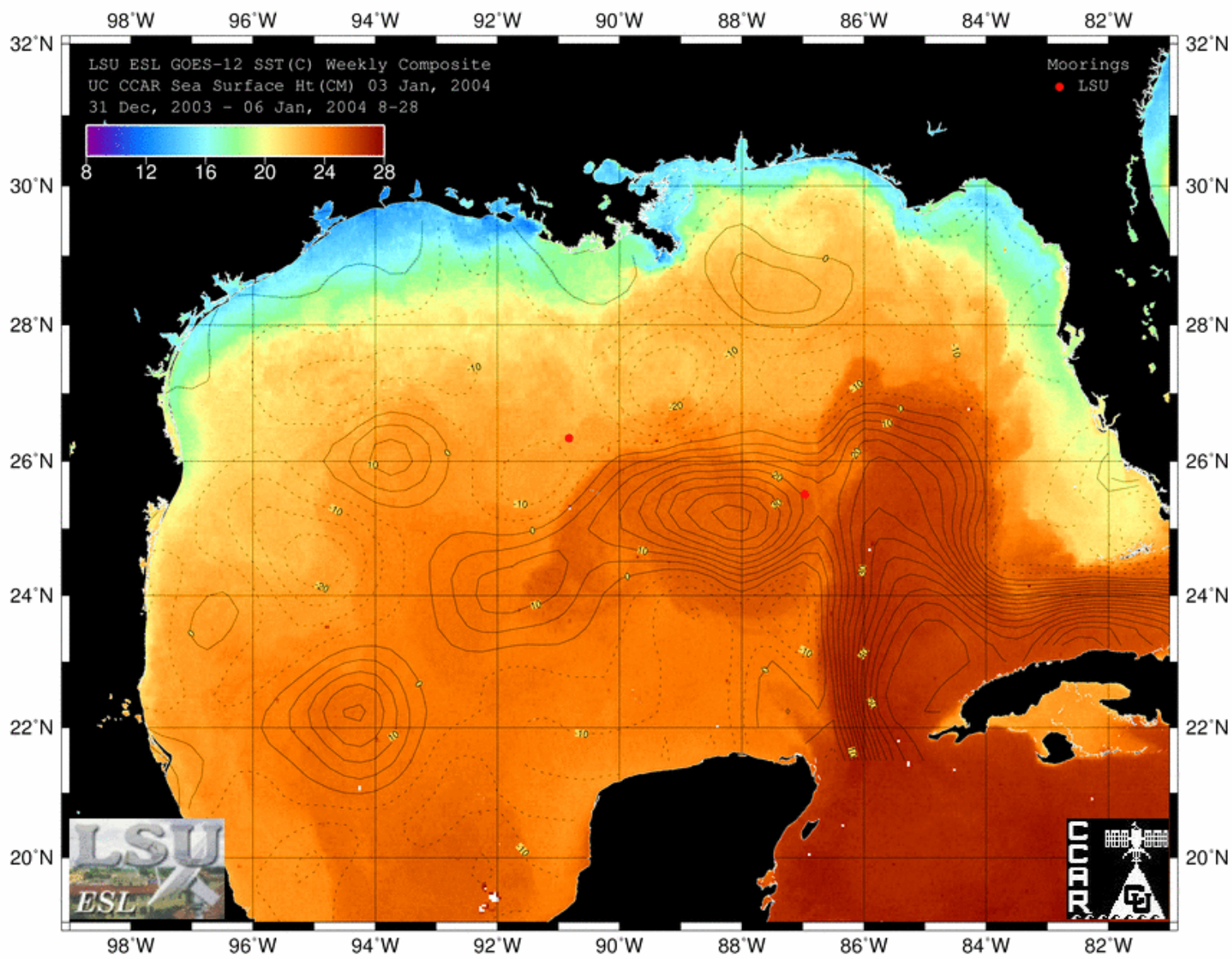


goes-12 2009/10/28 02:15:50.241

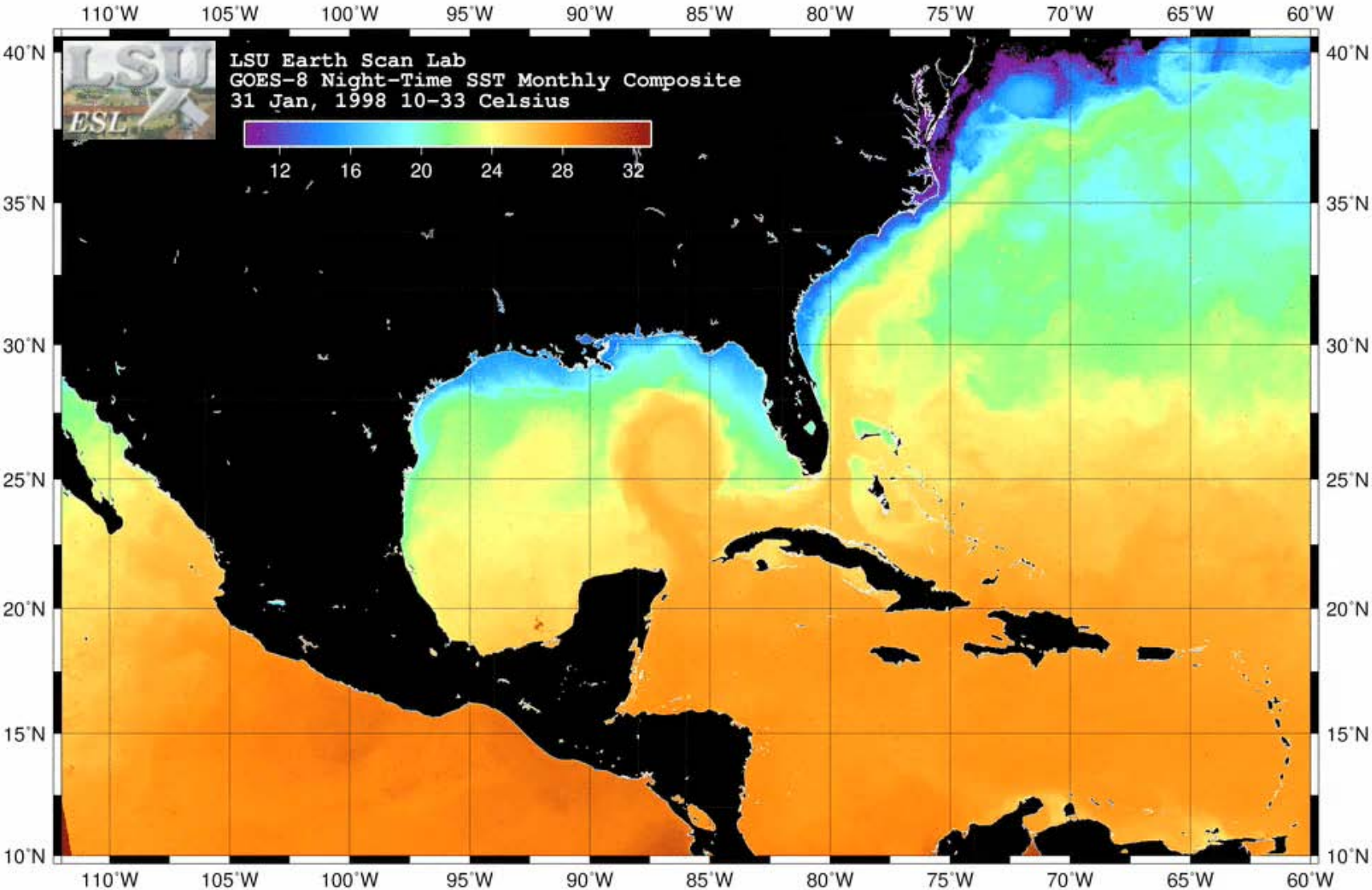
















Pontchartrain/Bonnet CarreCaernarvon RegionDavis Pond DiversionAtchafalaya BasinGreater Louisiana Area

Select day to view Images

Today : **October 28, 2009**

September 2009						
S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			


Select year - month to jump to

2009 Sep Go

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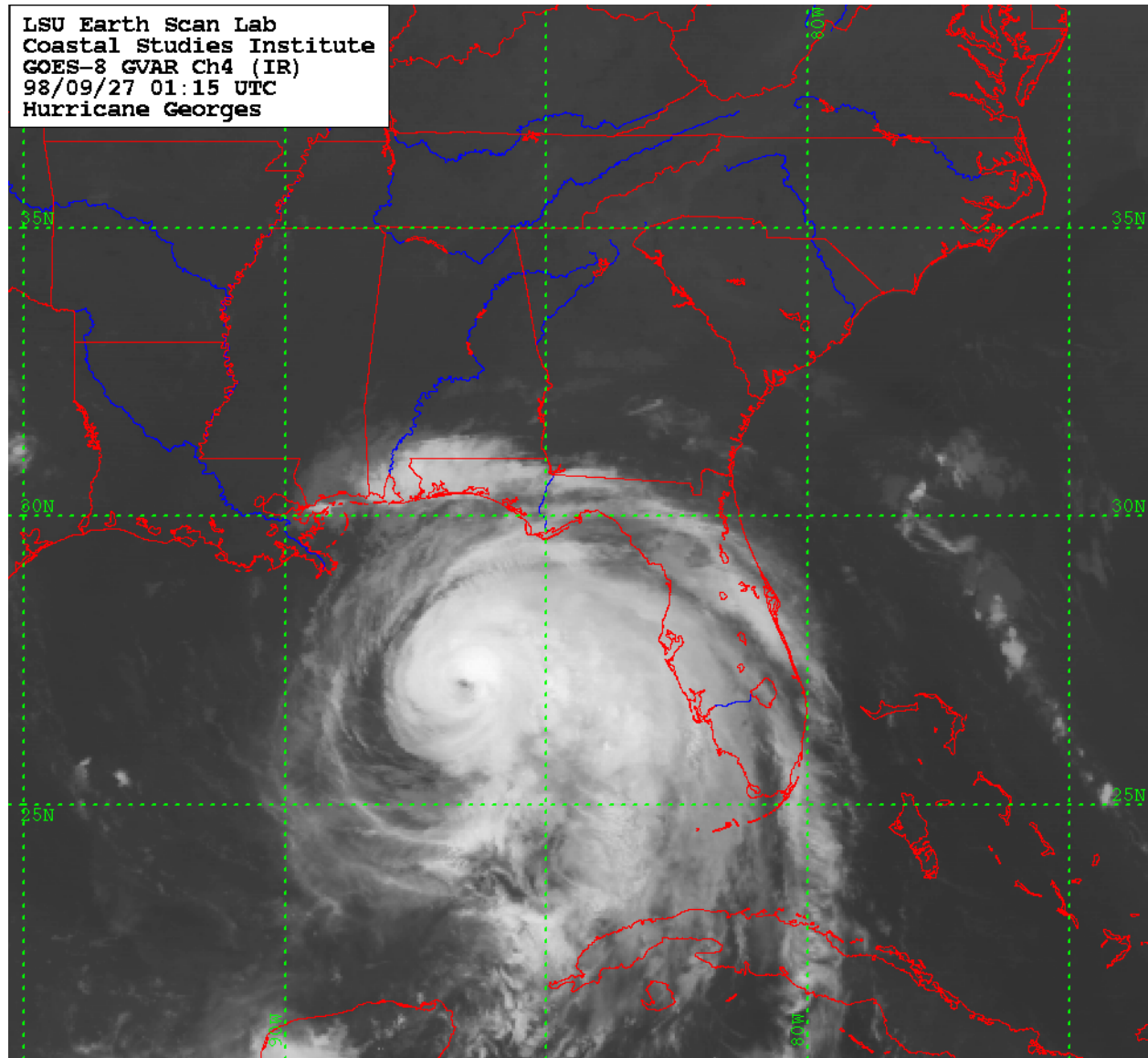
OCM ChlorophyllII, True Color and MODIS True Color images for 09/02/2009

Click any image for a full-screen plot



**AQUA MODIS true color**  
09/02/09 1910 UTC

# Hurricane Georges

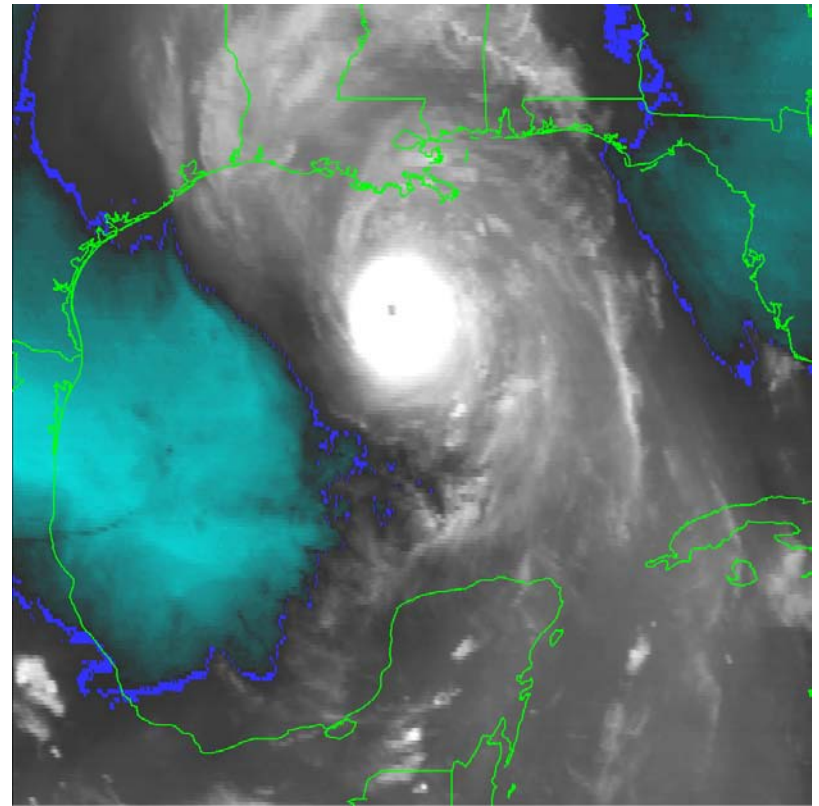
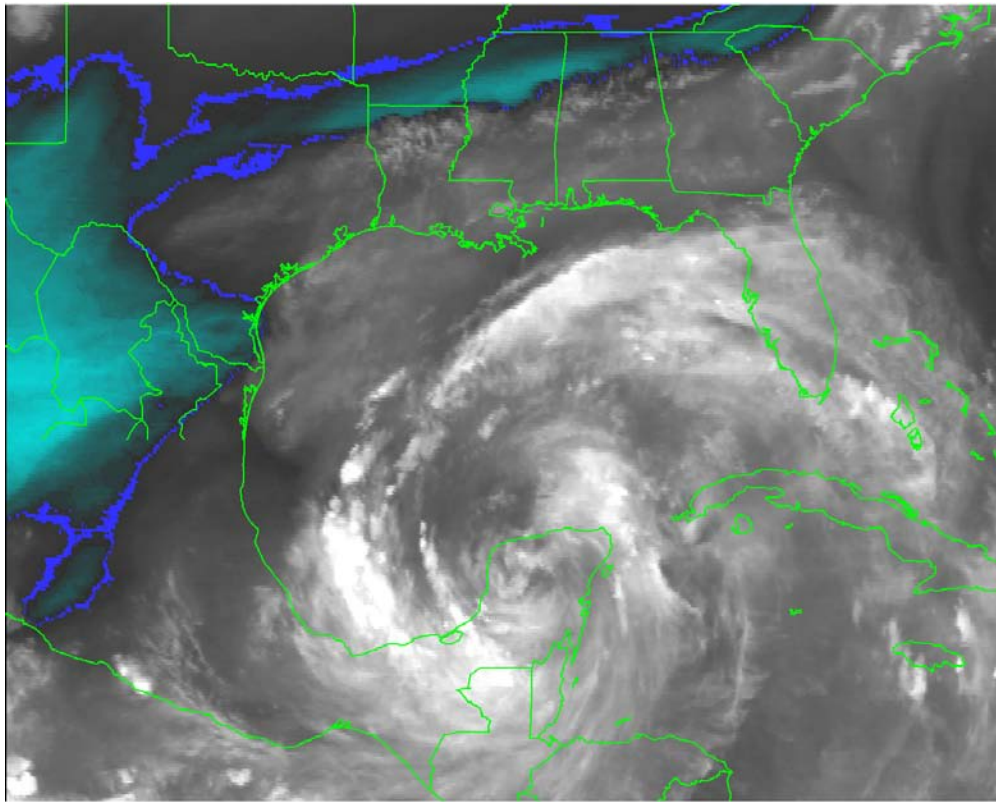


## GOHSEP – Governor's Office of Homeland Security and Emergency Preparedness







# A Tale of Two Siblings





# Typical ESL tropical storm web page

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**Active Tropical Storms**

*There is presently no significant tropical storm activity*

**Recent Seasonal Activity**

**Tropical Outlook & Discussion**

--2008 Season--

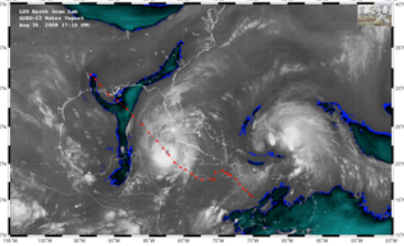
[arthur](#)
[bertha](#)  
[cristobal](#)
[dolly](#)  
[edouard](#)
[fay](#)
[gustav](#)  
[hanna](#)
[ike](#)
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**Past Years**

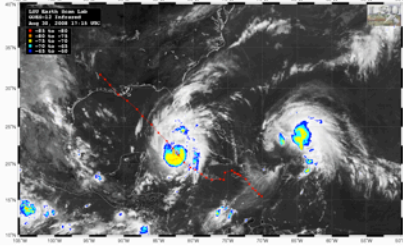
[2007](#)
[2006](#)
[2005](#)  
[2004](#)
[2003](#)
[2002](#)

## GUSTAV

### Satellite Animations

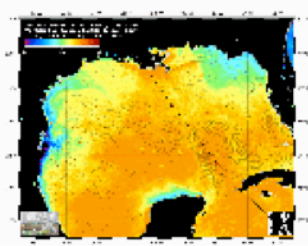


[Gustav Water Vapor Quicktime Movie](#)



[Gustav Infrared Quicktime Movie](#)

### Satellite Images



Hurricane Gustav, Terra-1 MODIS true color  
September 01, 2008 17:15 UTC

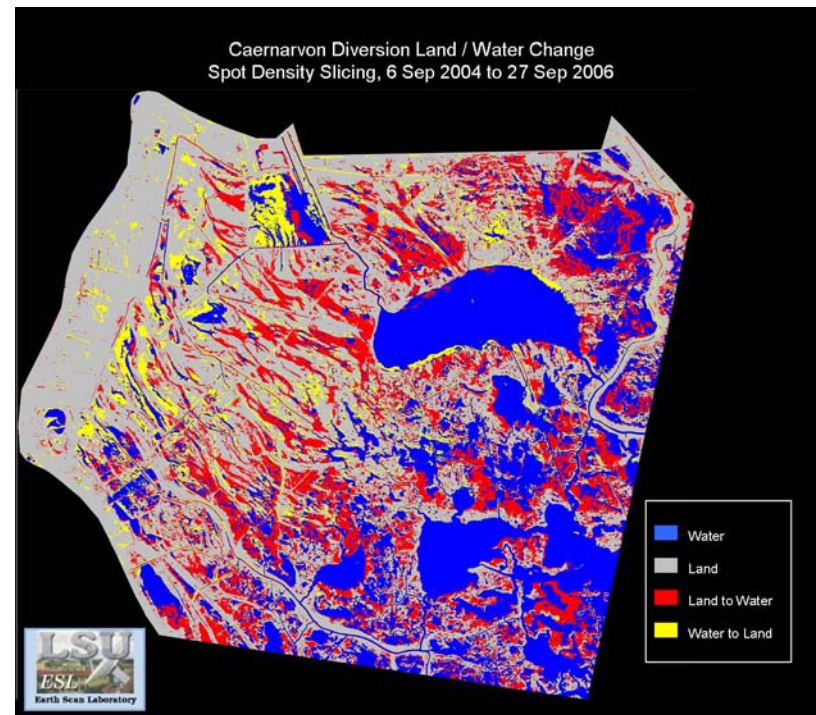
### Tracking Information from the NHC

NHC Advisory : 35  
 Name : GUSTAV  
 Type : Dissipated  
 Position : 31.7, -93.4  
 Heading (degrees) : 315  
 Motion Speed (kts) : 9  
 Central Pressure (mb) : 985  
 Maximum Sustained Winds (kts) : 30  
 Maximum Wind Gusts (kts) : 40  
 Valid time : 09:00:00 GMT, September 02, 2008

Note: To convert wind speeds to MPH, multiply knots by 1.15 (i.e. add 15%)

- [Latest NHC Forecast Advisory](#)
- [Latest NHC Discussion](#)
- [Latest NHC Public Advisory](#)

# The Wrath of Katrina



# Education and Outreach





## Summary and Future

- The ESL:
  - Has served as an operational satellite receiving station for over 20 years
  - Houses an ever-growing archive of images and data
  - Will soon be providing daily SST imagery to GCOOS
  - Serves research, education, and the community in diverse endeavors
  - Seeks to advance its operation in the future in these and many more new and exciting projects!

# Thank You!

## Q & A